Crowd sourcing for Challenging Technical Problems and Business Model

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Crowd sourcing may be defined as the act of outsourcing tasks that are traditionally performed by an employee or contractor to an undefined, generally large group of people or community (a crowd) in the form of an open call. The open call may be issued by an organization wishing to find a solution to a particular problem or complete a task, or by an open innovation service provider on behalf of that organization.

In 2008, the Space Life Sciences Directorate (SLSD), with the support of Wyle Integrated Science and Engineering, established and implemented pilot projects in open innovation (crowdsourcing) to determine if these new internet-based platforms could indeed find solutions to difficult technical challenges. These unsolved technical problems were converted to problem statements, also called "Challenges" or "Technical Needs" by the various open innovation service providers, and were then posted externally to seek solutions. In addition, an open call was issued internally to NASA employees Agency wide (10 Field Centers and NASA HQ) using an open innovation service provider crowd sourcing platform to post NASA challenges from each Center for the others to propose solutions).

From 2008 to 2010, the SLSD issued 34 challenges, 14 externally and 20 internally. The 14 external problems or challenges were posted through three different vendors: InnoCentive, Yet2.com and TopCoder. The 20 internal challenges were conducted using the InnoCentive crowd-sourcing platform designed for internal use by an organization. This platform was customized for NASA use and promoted as NASA@Work.

The results were significant. Of the seven InnoCentive external challenges, two full and five partial awards were made in complex technical areas such as predicting solar flares and long-duration food packaging. Similarly, the TopCoder challenge yielded an optimization algorithm for designing a lunar medical kit. The Yet2.com challenges yielded many new industry and academic contacts in bone imaging, microbial detection and even the use of pharmaceuticals for radiation protection.

The internal challenges through NASA@Work drew over 6000 participants across all NASA centers. Challenges conducted by each NASA center elicited ideas and solutions from several other NASA centers and demonstrated rapid and efficient participation from employees at multiple centers to contribute to problem solving.

Finally, on January 19, 2011, the SLSD conducted a workshop on open collaboration and innovation strategies and best practices through the newly established NASA Human Health and Performance Center (NHHPC). Initial projects will be described leading to a new business model for SLSD.